

REMARKS/ARGUMENTS

Claims 1 and 3-21 are pending in the application and stand rejected. Applicants will address this rejection below. Claims 22-24 are newly presented in order to provide a varying scope of the invention. These claims are fully supported in the application as filed; no new matter has been added.

Rejections Under 35 U.S.C. § 103

Claims 1-21 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,718,585, to Dehoff et al. (hereinafter "Dehoff"), in view of U.S. Patent No. 4,575,805 to Moermann et al. (hereinafter "Moermann"). Applicant respectfully traverses this rejection in that none of the cited references alone, or in combination, teach or suggest all elements of the claimed invention.

Claim 1 is directed to a method for facilitating mass customization of an object, including generating a template representing data common to the object, generating specific data to customize the object in conjunction with the template, wherein the specific data includes at least one tool path, and directing at least one tool along the tool path to fabricate a customized version of the object. Independent claim 13 is directed to a method for fabricating a customized object. The method involves receiving a digital representation of a target path, generating a mathematically smoothed version of the target path, applying the smoothed target path to generate a secondary target path, generating a streamlined tool path based on the secondary target path, and directing a tool along the tool path to fabricate the customized object.

At the outset, Applicants respectfully request withdrawal of the rejection because the Examiner has failed to state or show how the combination of Dehoff with Moermann teaches all elements of either claim 1 or claim 13, as is required to make out a prima facie case of obviousness. Rather, the Examiner combines Dehoff with Moermann to provide "artificial teeth having an enamel layer with zones of constant thickness". 6/26/06 Office Action, at page 3. However, this language is not recited in the pending claims.

The above error notwithstanding, Dehoff does not teach or suggest a number of aspects of claims 1 and 13 and therefore, their respective dependent claims as well. For example, as the Examiner points out in the Office Action, Dehoff fails to teach or disclose customizing the object. Therefore, it does not disclose or even contemplate any step involving customization, including generating specific data to customize the object. Since Dehoff does not contemplate generating data to customize an object, it certainly can't do so in conjunction with a template or anything else for that matter. Similarly, it doesn't teach directing a tool along a tool path to fabricate a customized object, since it doesn't contemplate fabrication of a customized object in the first place.

The current Office Action has contended that the deficiency of Dehoff with regard to customization can be compensated for by Moermann. This contention fails for two reasons. First, as described below, Moerman does not teach customization. Second, Dehoff actually teaches away from fabrication of a customized object in that Dehoff explicitly teaches the fabrication of prosthetic teeth having constant dimensions including thickness and dimensional ratios. See Dehoff, e.g., at Col 4, lines 10-62 ("Multiple layered teeth are provided that have a uniform thickness of enamel"..."teeth are provided in accordance with the invention that have constant dimensional ratios". Dehoff's teaching of constant dimensions is even noted by the Examiner on page 3 of the office action (e.g. "zones of constant thickness"). Thus, Dehoff can not, on the one hand, teach the fabrication of teeth having constant dimensions, and on the other, teach the customization of such teeth. Applicants respectfully point out that the courts have held that an obviousness rejection is improper when the combination of references teaches away from the claimed invention (See *In re Gurley*, 27 F.3d 551, 553, 31 (Fed. Cir. 1994)). Accordingly, withdrawal of the rejections is respectfully requested on this basis alone.

Applicants also traverse the rejection in that Dehoff fails to teach or suggest a number of limitations of the dependent claims. For example, nowhere does Dehoff teach an object having an idealized model surface and thus, creating an idealized tool path from the ideal model surface as is recited in claim 4. Further, nowhere does Dehoff teach generating a mathematically smooth 3D spline, let alone doing so using the idealized tool paths as recited in claim 6. Dehoff neither identifies a spline in any of its drawings, nor does it describe a technique

for smoothing it. Therefore, Dehoff can not teach all the limitations of subsequent dependent claims 7-9 which include the spline limitations of claim 6. This is similarly the case for claim 16 and its dependent claims 17-19.

Dehoff also fails to teach multiple aspects of claim 13. In addition to the deficiencies from claim 1 (e.g. customization, etc), Dehoff does not teach or suggest generating a mathematically smoothed version of a target path. No target path is identified in any of its drawings and no mathematical method is taught for smoothing it. Therefore Dehoff can not teach applying a smooth target path to generate a secondary target path, since there is no teaching of a mathematically smoothed target path to begin with. This is also the case for generating a streamlined tool path based on the secondary path since there is no teaching of the smoothed target path and the secondary target path. One can not streamline what was not there in the first place. Accordingly, on this separate and additional basis, Applicants respectfully request withdrawal of the rejection of claim 13 and its dependent claims 14-20.

While the Examiner appears to rely on Moermann to correct for the deficiencies of Dehoff with regard to customization, such reliance is misplaced for two reasons. First, as described above, Dehoff teaches away from customization. Second, Moermann does not teach customization of a tooth or any object and therefore, does not teach generating specific data to customize the object. While Moermann may teach fabrication of a custom tooth, it does not teach the customization of a tooth from a common tooth. This is because each tooth of Moermann is custom fabricated at the outset of its fabrication process, with no commonality between teeth. See Moermann, e.g., at Col 2, lines 34-52; and Col 3, lines 24-25. Thus, contrary to the Examiner's assertions, Moermann actually teaches away from customization. As stated above, an obvious rejection is improper when the combination teaches away from the claimed invention. Since Moermann teaches away from Applicants' invention, any obvious rejection using this reference is improper.

Accordingly, for all the reasons above, Applicants respectfully request withdrawal of the rejection of claims 1 and 13, as well as dependent claims 3-12 and 14-21.

Applicants also submit that newly presented claims 22-24 are immediately allowable over the prior art for all the reasons above. Additionally, none of the cited references,

alone or in combination, teach or suggest extracting data from a calculation process used in object fabrication as is recited in claim 22.

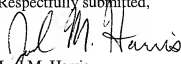
CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If for any reason the Examiner believes that a telephone conference would in any way expedite prosecution of the subject application, the Examiner is invited to telephone the undersigned at (650) 326-2400.

It is believed that no fees are due with this response; however, should any fees be required under 37 C.F.R. §§ 1.16 to 1.21 for any reason, the Commissioner is authorized to charge Deposit Account No 20-1430.

Respectfully submitted,


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Attachments
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